

IN THE CLAIMS:

1. (Currently amended) An electric device (~~100~~) having:
a resistor comprising a layer (~~7, 107~~) of a phase change material being changeable between a first phase with a first electrical resistivity and a second phase with a second electrical resistivity different from the first electrical resistivity, the phase change material being a fast growth material, the resistor being switchable between at least three different electrical resistance values by changing a corresponding portion of the layer (~~7, 107~~) of the phase change material from the first phase to the second phase.
2. (Currently amended) An electric device (~~100~~) as claimed in claim 1, further comprising means (~~400~~) for switching the resistor between the at least three different electrical resistance values.
3. (Currently amended) An electric device (~~100~~) as claimed in claim 1, wherein the portion of the layer (7, 107) of phase change material is in direct contact with a further resistor (6, 106) arranged in parallel with the resistor.
4. (Currently amended) An electric device (~~100~~) as claimed in claim 3, wherein the further resistor (~~6, 106~~) has a further electrical resistance which is smaller than the largest of the at least three different electrical resistance values.
5. (Currently amended) An electric device (~~100~~) as claimed in claim 4, further comprising a read out signal generator for providing an electric read signal having a read voltage (V) to the resistor and a read out circuit for determining the resistance value from the electric read signal, the read out circuit requiring a minimum current (I), the further resistance ($R_{sub.fr}$) being smaller than the read voltage (V) divided by the minimum current (I), ($R_{sub.fr} < V/I$).
6. (Currently amended) An electric device (~~100~~) as claimed in claim 4, further

comprising a read out signal generator for providing an electric read signal having a read current (I) to the resistor and a read out circuit for determining the resistance value from the electric read signal, the read out circuit requiring a minimum voltage (V), the further resistance ($R_{\text{sub.fr}}$) being smaller than the minimum voltage (V) divided by the read current (I), ($R_{\text{fr}} < V/I$).

7. (Currently amended) An electric device (~~100~~) as claimed in claim 4, wherein the resistor is switchable between N different electrical resistance values, N being an integer larger than two, the electric device further comprising a read out circuit for determining the resistance value, the read out circuit being able to discriminate between two resistance values having a relative resistance difference larger than or equal to a minimum detectable relative resistance difference $(dR/R)_{\text{min}}$, a ratio ($k=R_{\text{fr}}/R_{\text{cr}}$) of the further resistance (R_{fr}) over a minimum resistance (R_{cr}) of the layer (7, 107) of the phase change material satisfying $k/[(1+k)(N-1)] > (dR/R)_{\text{min}}$.

8. (Currently amended) An electric device (~~100~~) as claimed in claim 3, wherein the layer (~~7, 107~~) of phase change material and the further resistor (~~6, 106~~) have a contact resistance of 10^{-7} V cm²/A or less, preferably 10^{-8} V cm²/A or less, preferably 10^{-9} V cm²/A or less.

9. (Currently amended) An electric device (~~100~~) as claimed in claim 1, wherein the phase change material constitutes a conductive path between a first contact area (~~124~~) and a second contact area (~~132~~), a cross section of the conductive path being smaller than the first contact area and the second contact area.

10. (Currently amended) An electric device (~~100~~) as claimed in claim 5, wherein a part of the conductive path having the said cross section constitutes a volume of phase change material, the volume having an electrical resistance which is larger than an electrical contact resistance at the first contact area (~~124~~) and/or at the second contact area (~~132~~), irrespective of whether the phase change material is in the first phase or the second phase.

11. (Currently amended) An electric device (~~100~~) as claimed in claim 1, wherein the phase change material is a composition of formula $Sb_{1-c}M_c$ with c satisfying $0.05 \leq c \leq 0.61$, and M being one or more elements selected from the group of Ge, In, Ag, Ga, Te, Zn and Sn.

12. (Currently amended) An electric device (~~100~~) as claimed in claim ~~[[8]]~~ 11, wherein c satisfies $0.05 \leq c \leq 0.5$, and preferably $0.10 \leq c \leq 0.5$.

13. (Currently amended) An electric device (~~100~~) as claimed in claim 1, wherein the phase change material is substantially free of Te.

14. (Currently amended) An electric device (~~100~~) as claimed in claim 1, wherein the resistor is comprised in a body (~~102~~), the resistor constitutes a memory element (~~170~~), and the body (~~102~~) further comprises:

an array of memory cells, each memory cell comprising a respective memory element (~~170~~) and a respective selection device (~~171~~), and

a grid of selection lines (~~120, 121~~),

each memory cell being individually accessible via the respective selection lines (~~120, 121~~) connected to the respective selection device (~~171~~).

15. (Currently amended) An electric device (~~100~~) as claimed in claim 14, wherein:

the selection device (~~171~~) comprises a metal oxide semiconductor field effect transistor having a source region (~~172~~), a drain region (~~173~~) and a gate region (~~174~~), and

the grid of selection lines (~~120, 121~~) comprises N first selection lines (~~120~~), M second selection lines (~~121~~), and an output line,
the resistor (~~107~~) of each memory element (~~170~~) electrically connecting a first region selected from the source region (~~172~~) and the drain region (~~173~~) of the corresponding metal oxide semiconductor field effect transistor to the output line, a second region of the corresponding metal oxide semiconductor field effect transistor, selected from the source region (~~172~~) and the drain region (~~173~~) and lying free from the first region, being

electrically connected to one of the N first selection lines (120), the gate region (174) being electrically connected to one of the M second selection lines (121).

16. (New) The electronic device of claim 1, wherein the fast growth material has a crystal growth mechanism wherein crystalline growth occurs along the interface between an amorphous phase of the material and a crystalline phase of the material, and the phase change material being a composition of the formula $Sb_{1-c}M_c$, where $0.05 \leq c \leq 0.61$, and M is from the group of Ge, In, Ag, Ga, Te, Zn, and Sn.

17. (New) An electric device comprising:

a resistor comprising a layer of a phase change material being changeable between a first phase with a first electrical resistivity and a second phase with a second electrical resistivity different from the first electrical resistivity, the phase change material being a fast growth material characterized by its crystal growth along an interface between an amorphous phase of the material and a crystalline phase of the material, the resistor being switchable between at least three different electrical resistance values by changing a corresponding portion of the layer of the phase change material from the first phase to the second phase.

18. (New) The electronic device of claim 17, wherein the phase change material is a composition of the formula $Sb_{1-c}M_c$, where $0.05 \leq c \leq 0.61$, and M is from the group of Ge, In, Ag, Ga, Te, Zn, and Sn.

19. (New) An electric device comprising:

a resistor comprising a layer of a phase change material being changeable between a first phase with a first electrical resistivity and a second phase with a second electrical resistivity different from the first electrical resistivity, the resistor being switchable between at least three different electrical resistance values by changing a corresponding portion of the layer of the phase change material from the first phase to the second phase, and the phase change material being a fast growth material and a composition of one of: the formula $Sb_{1-c}M_c$, where $0.05 \leq c \leq 0.61$, and M is from the

group of Ge, In, Ag, Ga, Te, Zn, and Sn; a material including Ge, Ga, or Ge and Ga; and a material that is substantially free of Te.

20. (New) The electronic device of claim 19, wherein the fast growth material is a material including at least one of Ge and Ga at a concentration which in total is between 10 atomic percent and 30 atomic percent.

21. (New) The electronic device of claim 19, wherein the fast growth material is a material including at least one of Ge and Ga at a concentration which in total more than 20 atomic percent, and including at least one of In and Sn at a concentration which in total is below 30 atomic percent.